System Advisor Model Report

Photovoltaic System | 10.5 DC MW Nameplate | BAKERSFIELD MEADOWS FIELD, CA
Independent Power Producer | $1.99/DC W Installed Cost | 35.43 N, -119.05 E GMT -8

Performance Model

Modules	
Canadian Solar CS6X-300P	
Cell material	c-Si
Module area	1.9 m^2
Module capacity	299.6 DC Watts
Quantity	35,112
Total capacity	10.5 DC MW
Total area	65,027 m^2

Inverters	
Advanced Energy Industries: AE 500NX (3159500-XXXX)	
Unit capacity	500 AC kW
Input voltage	330 - 600 VDC DC V
Quantity	16
Total capacity	8 AC MW
DC to AC Capacity Ratio	1.32
AC derate factor	0.99

Array	
Strings	1,848
Modules per string	19
String voltage (DC V)	685.9
Tilt (deg from horizontal)	0
Azimuth (deg E of N)	180
Tracking	1 axis
Backtracking	no
Rotation limit (deg)	45
Shading	no
Soiling	yes
DC derate factor	0.93

Performance Adjustment	
Annual	99%
Year-to-year decline	0.5%/yr
Hourly factors	no

Annual Results (in Year 1)	
Horizontal solar kW/m^2	1,894
Incident solar kW/m^2	0
DC GWh from array	23.294
Net to inverter	21,731,000 DC kWh
Gross from inverter	20,765,000 AC kWh
Net to grid	20,558,000 AC kWh
Capacity factor	22.1%
Performance factor	0.8

Financial Model

Project Costs	
Total installed cost	$20,920,738
Salvage value	$1,046,036

Analysis Parameters	
Project life	20 years
Inflation rate	1.5%
Real discount rate	6.5%

Financial Targets and Constraints	
Solution mode	Calculate IRR
PPA price (bid price)	$1.#R/kWh
PPA escalation rate	0%/year

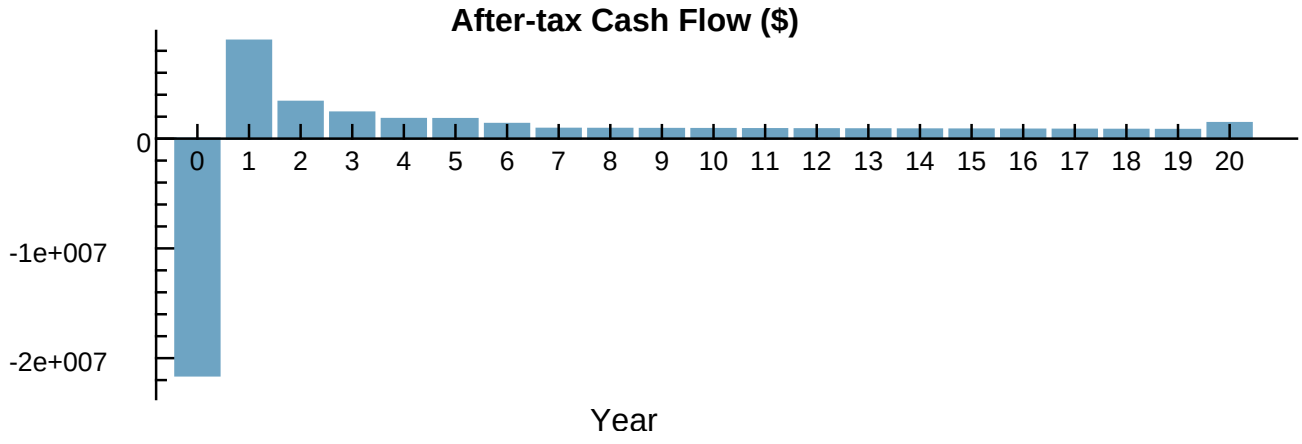
Project Debt Parameters	
Debt fraction	0%
Amount (before incentives)	$0
Term	15 years
Rate	5%

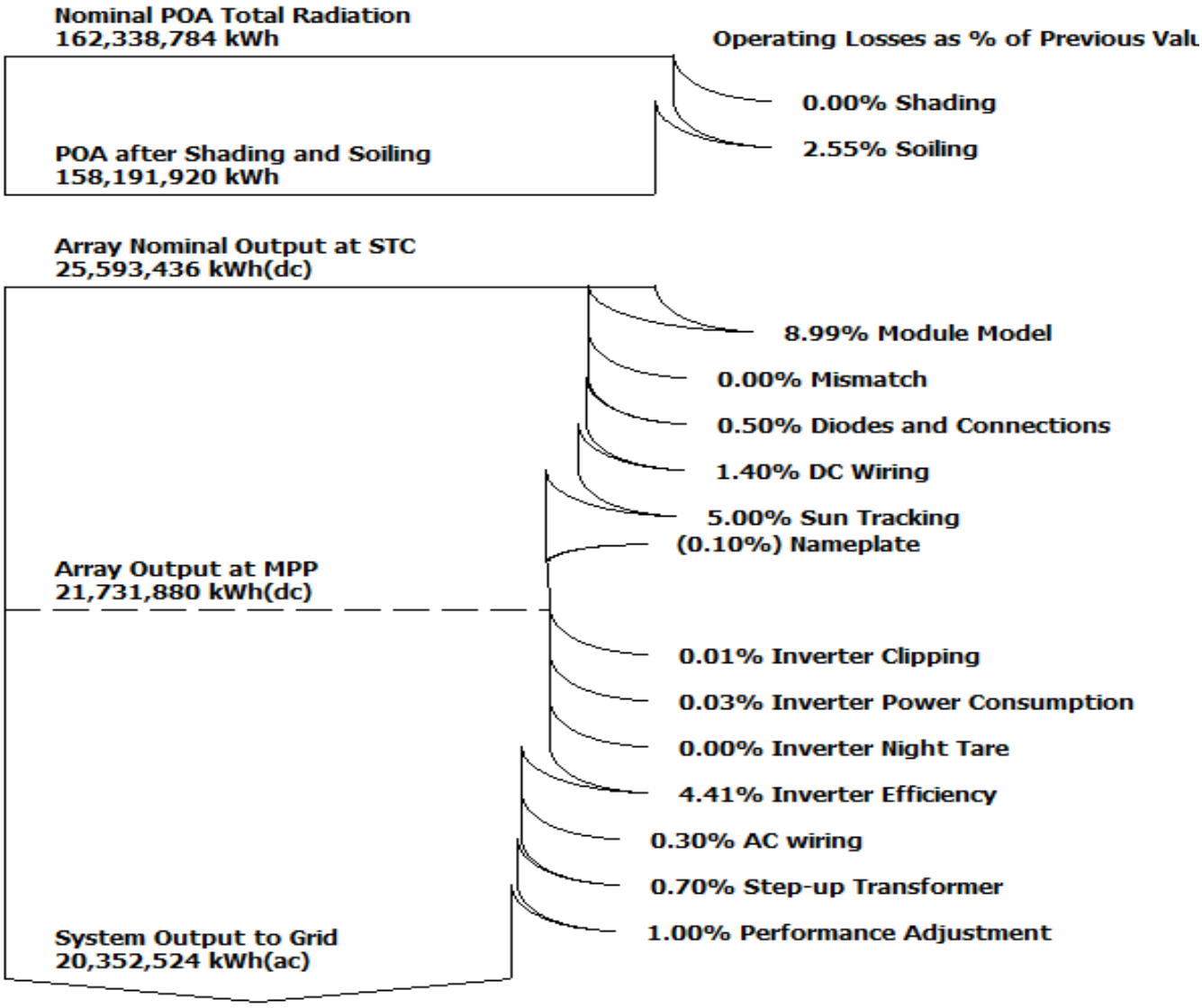
Tax and Insurance Rates	(% of installed cost)
Federal income tax	35%/year
State income tax	9.5%/year
Sales tax	8.5%
Insurance	0.25%/year
Property tax (% of assess. val.)	0%/year

Incentives	
Federal ITC	30%
Federal Depreciation	5-yr MACRS
State Depreciation	5-yr MACRS

Results	
Nominal LCOE	9.4 cents/kWh
Net present value	$-800,900
Internal rate of return	7.19%

Independent Power Producer | Flat Plate PV | CEC Module with Database | Sandia Inverter Database


After-tax Cash Flow ($)
0
-1e+007
-2e+007
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Year


Nominal POA Total Radiation
162,338,784 kWh
Operating Losses as % of Previous Valu
0.00% Shading
2.55% Soiling
POA after Shading and Soiling
158,191,920 kWh
Array Nominal Output at STC
25,593,436 kWh(dc)
8.99% Module Model
0.00% Mismatch
0.50% Diodes and Connections
1.40% DC Wiring
5.00% Sun Tracking
(0.10%) Nameplate
Array Output at MPP
21,731,880 kWh(dc)
0.01% Inverter Clipping
0.03% Inverter Power Consumption
0.00% Inverter Night Tare
4.41% Inverter Efficiency
0.30% AC wiring
0.70% Step-up Transformer
1.00% Performance Adjustment
System Output to Grid
20,352,524 kWh(ac)